United States Department of Agriculture

Natural Resources Conservation Service

NRCS

Cape Cod Water Resources Restoration Project

Sponsored by the

- Cape Cod Conservation District
- Barnstable County Commissioners

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Questions and Answers

What is the project area?

All of Barnstable County excluding federal lands.

What are the project objectives?

- Improve water quality for shellfish areas
- Restore fish runs
- Restore tidal flows to restricted salt marshes

How were the sites selected?

For the stormwater discharges effecting shellfish beds we spoke with town officials, agency representatives and asked their opinions and recommendations. For the tidally restricted salt marshes we used the two published atlases on tidally restricted salt marshes (by the Cape Cod Commission and the Buzzards Bay Estuary Project). The fish passages were identified by the Massachusetts Division of Marine fisheries in their survey on anadromous fish passages in Cape Cod and the Islands.

What are the problems at these sites?

Tidally restricted salt marshes, and the resultant changes to soil and water chemistry and plant community, leads to reduced use of the marsh by birds, invertebrates and fish.

How long has it taken for these sites to become a problem?

Many of the sites have been hydrologically restricted for years; however, once the natural tidal flushing is restored (along with the resultant increase in salinity), the invasive plants die off relatively quickly and re-colonization of the natural vegetation occurs.

What is a fish passage?

Anadromous fish such as alewife and blueback herring migrate from the ocean to freshwater areas for spawning. Physical obstructions such as dams or miss-aligned road culverts create barriers and prevent fish from moving upstream. Fish passages are structures or man-made channels to allow fish to “pass” the barrier.

What is a stormwater discharge site?

Stormwater runoff is the water from rain and snow melt that flows across land. Pollutants that have been deposited on land are carried by runoff into nearby rivers, steams, lakes, ponds, wetlands, marine waters and groundwater. This contaminated runoff significantly degrades water quality and aquatic habitat.

In Massachusetts, stormwater runoff and discharges from stormwater drain pipes are the largest contributor to water quality problems in the Commonwealth’s rivers, streams, and marine waters.

(Source: Stormwater Management, Volume 1: Stormwater Policy Handbook, March 1997.)

What does a degraded salt marsh look like?

Salt marshes with restricted tidal connection to the ocean have unnatural flooding regimes, alterations of soil and water chemistry and changes to plant and animal communities. One of the primary indicators is the proliferation of Phragmites australis (Common reed), Lythrum salicaria (Purple loosestrife), or Typha angustifolia (narrow leaved cattail).

What should a salt marsh look like?

An un-disturbed salt marsh is typically laced with tidal creeks that drain fresh water from the marsh and provide a way for tidal water to be distributed throughout the wetland.

The plant community is relatively homogeneous and is dictated by salinity levels. *Spartina alterniflora* (smooth cordgrass) is dominate in the low marsh (which is flooded at each high tide or twice daily) and *Spartina patens* (salt meadow cordgrass), *Distichlis spicata* (salt grass) and *Juncus gerardii* (black grass) are predominate in the high marsh (which is inundated every few weeks).

The marsh border, typically only flooded at extreme high tides or storm surges, has a more diverse plant community including: *Panicum virgatum* (Switchgrass), *Iva frutescens* (high tide bush), *Baccharis halimifolia* (sea myrtle) and *Solidago sempirvirens* (seaside goldenrod).

How did the sites get that way? Who's to blame?

The construction of roads, bridges and railroads with inadequate culverts, narrow bridge openings or no openings has resulted in alteration or elimination of the twice daily tidal flushing needed to maintain the salt marsh. People are to blame.

Is the work really necessary?

Some restoration work has been completed and more is underway. However it is not adequate to address the large number of sites needing work. The current trend for shellfish areas is an increasing number of closure days.

Some hydrologically restricted salt marshes will continue to degrade further without any action; other sites are already severely degraded and offer limited functions as compared to unrestricted salt marshes.

Anadromous fish have experienced a general decline over the last century. River herring, specifically, have shown a significant decrease in abundance in recent years. With many of the over 140 fishways on the coastal streams of Massachusetts suffering from deterioration and outdated designs, the need for a concerted restoration effort to insure passage to traditional spawning/ nursery areas is apparent. The large number of river herring populations and potential restoration sites located on Cape Cod make it an ideal location to take on this work.

Are these problems affecting wildlife or public health? Is my property in danger?

The proliferation of invasive plant species, which offer little wildlife food value as compared to native plant species, results in reduced use of the marsh by wildlife. In addition, common reed may pose a fire hazard due to the dried stems. The tidal restriction could also pose a flooding hazard by allowing stormwater runoff to pond in the marsh because of inadequate culverts.

Are these problems affecting my property value?

The visual and aesthetic properties of a natural salt marsh could increase property values as a result of improved views.

What will be the benefits of restoration?

Hydrologic restoration of salt marshes will provide improved shorebird, waterfowl, finfish and shellfish habitat and offer recreational opportunities and aesthetically pleasing open coastal spaces.

Stormwater remediation measures will improve water quality and decrease the number of days shellfish beds are closed, and in some cases decrease the closure days of public beaches.

Providing access to new and former spawning/nursery habitats for river herring as well as improving passage to currently used habitats will result in an increase in the size of existing local populations and translate into greater numbers of individuals at large in the marine environment.

Since river herring are an important forage species for many large predator fish such as striped bass, bluefish and Atlantic cod, presumably these species will experience a direct benefit. In freshwater bodies which are used as nursery areas for the juvenile herring, sport fishermen claim an increase the number of trophy size sport fish such as largemouth bass and pickerel. This has actually been documented in a number of Cape Cod ponds.

In addition, river herring have become an important bait for the Massachusetts striped bass sport fishery and continues to be a valued bait for the commercial lobster industry. While the importance of river herring for human consumption has dwindled over the years there remains a degree of local interest for this purpose.

How long will it be before we see the benefits?

Typically one to three years for salt marsh restoration and water quality improvements for shellfish areas. Actual changes are dependent on weather, how degraded a site is at the time of restoration, and other factors.

Fish passage improvements will provide immediate access to spawning areas.

What will the restoration work entail?

Tidal flow to salt marshes is typically accomplished by replacing existing culverts with larger culverts. Stormwater runoff is usually treated by collecting the first one-half inch to one inch of runoff and infiltrating it into the ground. Fish passages can be improved by various techniques such as from removing the obstruction, installing a fish ladder or constructing a channel to bypass the obstruction.

When will the restoration work begin?

Only after the Watershed Plan and EIS is approved and funded. We hope to accomplish this by October 1, 2006.

How long will the restoration work take?

The project is anticipated to take place over 10 years. The actual rate of work is dependent on funding (local, state and federal).

Who will do the restoration work?

Any town in Barnstable County or unit of state government may sponsor a project. The actual construction work can be done by town forces, town contract, federal contract, or combination of these options.

Will the government need access to my land to work at a neighboring site?

Generally no but temporary access may be needed.

What if I don't want to allow someone on my property?

If you don't sign a written permission to allow access on your property, then no one will go on your property.

Will the work involve heavy equipment, noise, or dust?

Construction will involve using heavy equipment and there can be noise and dust during construction. Typically construction is completed in three to five days although large or complex sites may take longer.

Will the work affect roads and/or traffic?

Construction will most likely affect roads and traffic temporarily.

Will the view from my property change?

Typically stormwater remediation measures are installed underground and only the manhole covers are visible after construction. Sometimes wetlands are constructed to treat runoff when soil conditions are not suitable for infiltration.

Restored salt marshes will undergo a fairly rapid change in the plant community, from predominately invasive species (especially common reed) to the natural salt marsh grasses. The salt marsh grasses are shorter in height, which will result in a more open view.

Restored fish passages will only be visible from the immediate area of the installed measure.

How much will the restoration work cost?

Cost estimates are still being developed but initial figures estimate the total project federal share at $15-20 million over ten years.

Who will pay for the restoration work? Will my town have to contribute?

Planning and design work is a 100 percent federal cost. Permits and land rights are a 100 percent local cost. Construction costs are split 65 percent federal and 35 percent local.

Who pays for preparing designs?

Planning and design work is a 100 percent federal cost.

Aren't there other agencies and programs already doing this work?

Yes. However the number of sites needing work exceeds the resources currently available to address the problem in a reasonable period of time. We are working closely with others to efficiently share resources.

How do I get "my" site looked at?

Contact the USDA Natural Resources Conservation Service, 270 Communication Way, Unit 1 G, Hyannis MA, 508-771-6476

Was "my" site looked at already?

If your site is a salt marsh and is listed in either of the Cape Cod Atlas of Tidally restricted Salt Marshes or the Buzzards Bay Watershed Atlas of Tidally restricted Salt Marshes, then it has been reviewed. If your site is a fish passage obstruction and is listed in the Division of Marine Fisheries Survey of Anadromous Fish Passage in Coastal Massachusetts, then it has been reviewed. If your site is not listed or involves stormwater runoff affecting a shellfish area, contact the Natural Resources Conservation Service.

How do I get "my" site worked on?

You should contact your town selectboard member and ask them to have the town sponsor the site.

What if I don't want "my" site worked on?

You should contact your town selectboard member and ask them to have the town not sponsor the site. Also contact the Natural Resources Conservation Service and inform them. All work is voluntary.

What is a sponsor?

A sponsor is a legal entity which has the ability to obtain land rights, and operate and maintain the completed works of improvement.

Do you need permits for construction?

Prior to any project construction, all necessary local, state and federal permits must be obtained.

Who obtains permits?

Permits and land rights are a 100 percent local responsibility and cost.

Who does the work?

A contractor may be hired or town forces may do the work.

Besides cash how can sponsors contribute the local cost share?

Through in-kind services such as:

- Prepare design
- Contract administration
- Supply materials
- Traffic control
- Deposal site for excess/ unsuitable materials
- Construction

For more information:

Cape Cod Conservation District

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Barnstable County Commissioners

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USDA Natural Resources Conservation Service

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